

REMARKS

These remarks are in response to the final Office Action mailed December 30, 2003 (hereinafter referred to as "the Final Office Action") and to the Advisory Action mailed April 26, 2003. A request for continued examination accompanies this amendment. At the time of examination of the Final Office Action, Claims 1-15, 17-20, 22, 24 and 25 were pending. Independent claims 1, 17 and 24 are amended herein, with no further claims being cancelled or added herein. Accordingly, Claims 1-15, 17-20, 22, 24 and 25 remain pending. The pending claims remain rejected either under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,427,161 issued to LiVecchi (hereinafter referred to simply as "LiVecchi") or under 35 U.S.C. § 103(a) as being unpatentable over LiVecchi in view of U.S. Patent Publication No. 2001/0029548 applied for in the name of Srikantan et al. (hereinafter referred to simply as "Srikantan"). The undersigned respectfully requests reconsideration in light of these remarks.

The Advisory Action stated that a previous limitation in each of Claims 1, 17, and 24 was not supported by the specification and thus no patentable weight was afforded to that limitation. In particular, the Advisory Action stated as follows:

The request for consideration has been considered but does NOT place the application in condition for allowance because: Applicants' arguments in regards to claims 1, 17, and 24 recite that the "backlog queue includes connection request without regarding for whether or not the connection request includes associated request data" which is not supported by the Applicants' specification. Examiner does not give any patentable weight to this limitation which is not supported by the specification. Therefore, LiVicchi's backlog have the same characteristics as the recited backlog queue recited in Claim 1.

This recited feature has been amended somewhat in each of Claims 1, 17 and 24. As now recited, method claims 1 and 24 are generally directed to a method (and an associated computer program product, e.g. claim 17, for implementing the method) of a server reducing denials of service even though the server is experiencing a denial of service attack. As recited, the server receives connection requests, establishes a connection socket for one or more of those connection requests without putting that connection request into a backlog queue. For those connection requests for which the server cannot currently establish a connection socket, the connection request is placed in the backlog queue without establishing a connection socket for the time being. The backlog queue is capable of containing connection requests that include associated

request data and connection requests that do not include associated request data. Upon determining that the backlog queue is being used, the server identifies any connections sockets that have no received request data, and disconnects those identified connection sockets.

Since the amendment is similar in scope to the prior claim, which contains the element that the Advisory Action states is not supported by the Claims, these remarks will now address why the amended version of this element in particular is supported by the specification. In particular, the recited feature in question is a "backlog queue is capable of containing connection requests that include associated request data and connection requests that do not include associated request data". The claims are directed towards the conduct of a server when experiencing a denial of service attack. As is well known to those of ordinary skill in the art, servers receive two kinds of connection requests, ones that have associated request data, and ones that do not. For example, Page 2, line 19 through 23 of Applicant's specification identifies the typical case in which a connection request includes associated request data. Page 3, lines 6 and 7 identify the non-typical case in which a connection request does not include associated request data.

The Advisory Action implies that because the specification does not expressly state that connection request in the backlog queue may or may not contain associated request data, that there is no support for this recitation in the claims. However, in so doing, the Advisory Action ignores what is well within the grasp of those of ordinary skill in the art with respect to connection requests and Denial of Service attack prevention. Specifically, as demonstrated above and as admitted by the Applicant, it is well known that connection requests may include associated request data, or may not include associated request data. Furthermore, if the server receives a connection request which it cannot currently handle, the connection request is placed in the backlog queue (see Page 13, lines 22-24). Since no further restriction is stated with respect to connection requests placed in the backlog queue, it would be abundantly apparent to one of ordinary skill in the art after reading the specification that the connection requests in the backlog queue may include associated request data, or may not include associated request data. For example, during normal operation when the server was not experience a denial of service attack, any connection requests in the backlog queue would typically include the associated request data since that is the conventional characteristic of connection requests during normal operation. Furthermore, during a denial of service attack, the backlog queue would trend more

towards connection requests that do not include associated request data. Accordingly, it is abundantly clear from the specification in light of the knowledge available to those of ordinary skill in the art that the recited backlog queue is capable of containing connection requests that include associated request data and connection requests that do not include associated request data."

The Advisory Action states that this features was not given any patentable weight as the justification for stating that "Therefore, LiVecchi's backlog have the same characteristics as the recited backlog queue recited in claim 1." However, this conclusion ignores other strong independent arguments provided in Amendment "B" with respect to the differences between LiVecchi and the recited independent claims.

Specifically, the undersigned re-presents the following arguments which have not yet been addressed by the Examiner. Each of these arguments represents an independent reason for allowing the independent claims over the cited art.

In contrast to the pending claims, LiVecchi is directed towards thread scheduling techniques for multithreaded servers (LiVecchi, Title), and is not directed towards countering denial of service attacks. However, the independent claims specifically recite that the claim is directed towards a "method of the server computer system reducing denials of service". Accordingly, the independent claims recited features that are not disclosed by LiVecchi. Furthermore, for this same reason, there are numerous features of Claims 1, 17 and 24 that are naturally not disclosed by LiVecchi in light of their different purposes.

The final Office Action asserts that Column 13, lines 15-46 of LiVecchi teaches that "for each connection request for which the server computer system cannot currently establish a connection socket, placing the connection request in the backlog queue without then establishing a connection socket, wherein the backlog queue includes connection requests without regarding for whether or not the connection request includes associated request data". However, this is not true, especially when reading the passage in its proper context. For instance, LiVecchi describes a first preferred embodiment of their invention from Column 10, line 48 through Column 15, line 36. The passage cited by the Examiner falls within this range and appears to be detailing aspects of the first preferred embodiment.

With respect to the first preferred embodiment, LiVecchi states that "[i]n order to differentiate accepted connections which have not received data from those that have, a 2-stage

queue is defined" (LiVecchi, Col. 11, lines 10-12). The first stage is referred to as the "accepted connections queue" (LiVecchi, Col. 11, line 16). Once a data packet arrives for that connection, the connection is moved to the second stage referred to as the "ready queue" (see LiVecchi, Col. 11, lines 16-18). Thus, connections in the "accepted connections queue" do not have associated data, and connections in the "ready connections queue" do have associated data. The passage referred to by the Office Action discusses a "small backlog [that is] maintained on the incoming ready queue" (LiVecchi, Col. 13, lines 18-19). In contrast, independent Claims 1, 17, and 24 recite that a "backlog queue includes connection requests without regard for whether or not the connection request includes associated request data". Accordingly, the backlog referred to in Col. 13 does not have the same characteristics as the recited backlog queue of Claim 1.

Furthermore, the Final Office Action indicated the passage from Column 15, line 67 to Column 16 line 67 describes that "in response to the determination [that the backlog queue is being used], identifying any connection sockets that have no received request data; and disconnecting the identified connection sockets" with respect to Claims 1 and 17, and a similar recitation with respect to Claim 24. However, this is also not true. The undersigned has reviewed the passage in question numerous times, and has found no reference to any description that connection sockets are identified as having no request data or that any identified connection sockets are disconnected. The undersigned respectfully requests clarification if this passage is continued to be asserted as relevant to the claim language. Furthermore, even if the passage does disclose the identification of connection sockets that have no received request data, there is no indication that this is done in response to any determination "that a backlog queue is being used". There is simply no indication of this in the cited passage.

Srikantan is directed towards a mechanism for handling events received at a server socket (Srikantan, Title). However, Srikantan does not describe the use of a backlog queue that includes connection requests without regard for whether or not the connection request includes associated request data as recited in Claims 1, 17 and 24. Furthermore, Srikantan does not describe that in response to a determination that a backlog queue is being used, any connection sockets that have no received request data are identified and disconnected as recited in Claims 1, 17 and 24.

Accordingly, even if combined, LiVecchi and Srikantan do not teach or suggest independent Claims 1, 17 or 24. Furthermore, LiVecchi and Srikantan do not teach or suggest

any of their associated dependent claims for at least the reasons provided above. Accordingly, favorable action is requested.

Accordingly, favorable action is requested. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney.

Dated this 28th day of May, 2004.

Respectfully submitted,



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